

PETITION OF KIMBERLY-CLARK CORPORATION TO THE ADMINISTRATOR,
U.S. ENVIRONMENTAL PROTECTION AGENCY, TO EXEMPT
SOLVENT-CONTAMINATED DISPOSABLE INDUSTRIAL WIPERS FROM BEING
CONSIDERED A HAZARDOUS WASTE UNDER THE MIXTURE RULE

Correspondence relating to this Petition should be sent to:

and

I. Introduction

Disposable industrial wipers contaminated with certain solvents listed in Subpart D of Part 261 may be considered a hazardous waste pursuant to the mixture rule, §261.3(a)(2)(iv).

For the reasons discussed below, Kimberly-Clark Corporation ("Kimberly-Clark") believes that solvent-contaminated disposable industrial wipers do not present any meaningful environmental hazards when disposed of as part of the regular, nonhazardous solid waste stream. Indeed, we believe that subjecting such contaminated disposable industrial wipers to regulation as a hazardous waste would result in increased environmental hazard. Therefore, we believe that disposable industrial wipers contaminated with solvents need not and should not be regulated as a hazardous waste.

II. Kimberly-Clark's Interests

Kimberly-Clark is a major manufacturer of disposable industrial wipers, a significant number of which are used to wipe small quantities of solvent off hands, machinery, equipment, or floors.

Disposable industrial wipers compete with both shop towels and rags in the industrial wiper market. Shop towels, which currently account for approximately 21 percent of the total industrial wiper market, are cloth wipers designed to be used, washed, and re-used. Shop towels are rented by industrial launderers to manufacturing, automotive, chemical, and other similar facilities for use in heavy-duty wiping. The soiled shop towels are either washed or dry-cleaned at commercial laundry facilities. Liquid wastes generated by these cleaning processes

are generally discharged into municipal sewage treatment systems. Drycleaning establishments also release some of their contaminated cleaning solvents into the air as gaseous emissions.

Rags currently account for approximately 22 percent of the industrial wiper market. They are made from old clothing or from cloth remnants from textile mills, and vary in size and type of fabric. After use, most rags are disposed of as part of a facility's regular, nonhazardous solid waste.

Kimberly-Clark's interests are that the use of disposable industrial wipers not be impeded by unnecessary regulatory requirements -- particularly where, as here, those regulatory requirements make little sense in the context of solvent contaminated disposable industrial wipers. Indeed, these regulatory requirements -- treating such contaminated disposable wipers as a hazardous waste -- would be inappropriate and counterproductive.

III. The Environmental Impacts of Discarding Solvent-Contaminated Disposable Industrial Wipers

A. The Amount of Solvent Contained in Solvent-Contaminated Disposable Industrial Wipers is Insignificant

As shown in Appendix A, the amount of solvent disposed of annually in disposable wipers, even under the most conservative assumptions, represents less than 0.032% of the total volume of listed solvent wastes disposed of annually.

More importantly, even this insignificant proportion vastly overstates the true contribution of disposable industrial wipers to the volume of solvents actually disposed of. Appendix B demonstrates that virtually no solvents will be added to disposal sites^{1/} by disposable industrial wipers due to the highly volatile nature of solvents.

Of the six commonly used solvents studied, all but one were completely evaporated from wiper samples placed in the bottom of a trash can (typical in size to an industrial waste can) within 48 minutes. For the remaining solvent, complete evaporation took place in less than five hours. Since most disposable wipers are stored in industrial waste cans for well over 5 hours prior to removal and ultimate disposal, the amount of solvent that would be contributed to nonhazardous waste landfills from contaminated wipers would be extremely small.

B. The Amount of Solvent That Would be Added to Individual Landfills Would be Virtually Zero

Under the most conservative assumptions, wipers could contain up to 7.1 million pounds of solvent each year, or approximately 1 million gallons. Even assuming that all of this

^{1/} 95% of regular, nonhazardous solid waste is landfilled, and only 5% is incinerated. U.S. EPA, Solid Waste Data: A Compilation of Statistics on Solid Waste Management Within the United States, PB 82-107301 (1981), p. 33. Because of solvents' relatively low destruction temperatures, incineration of solvent-contaminated disposable industrial wipers creates no environmental hazards. Indeed, the high energy content of the wipers themselves (approximately 20,000 BTUs per pound) would help promote the complete combustion of any residual solvent. We therefore address landfilling only.

solvent were listed in Subpart D, which it is not, this theoretical maximum would still amount to less than 0.032% of the total amount of Subpart D solvent disposed of each year.

Given the pervasive use of disposable industrial wipers throughout all types of industry, there is no reason to believe that any individual landfill would receive significantly more solvent-contaminated wipers than the average except as a function of the landfill's size. Since there are some 13,000 active nonhazardous landfill sites in the United States, each landfill would receive only approximately 77 gallons of solvent contaminated in disposable wipers each year, or less than 6-1/2 gallons per month -- a very small fraction of 1 percent of the total solid wastes received at that facility.^{2/} See §261.11(a)(3)(viii).

Even this insignificant figure grossly overstates the true contribution that solvent-contaminated disposable industrial wipers would make to individual landfills. As stated earlier, the total amount of solvents that would be added to landfills due to disposal of solvent-contaminated wipers would be negligible due to evaporation.

^{2/} Further, solvent-contaminated disposable wipers are probably well dispersed throughout the solid waste stream, and so the concentration of solvent-contaminated materials in any portion of the landfill is likely to be extremely small.

C. Solvent-Contaminated Wipers Do Not Exhibit Any of the Characteristics of Hazardous Waste Identified in Subpart C

Solvent-contaminated disposable industrial wipers do not display any of the characteristics of a hazardous waste identified in Subpart C. If wipers contaminated with particular solvents did exhibit any of those characteristics, then treatment of such contaminated wipers as hazardous waste would, of course, be appropriate.^{3/}

Solvent-contaminated wipers are not "capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes...." §261.21(a)(2). Indeed, as noted repeatedly, by the time such contaminated wipers reach a landfill, they contain virtually no solvent due to evaporation.

Nor do such wipers display the characteristic of corrosivity. For one thing, contaminated wipers are neither aqueous nor liquid. Further, such wipers are not strongly acidic or strongly alkaline, and they do not corrode steel. §261.22.

Such wipers also do not display the characteristic of reactivity.^{4/}

^{3/} Though there are many ways of excluding solvent-contaminated disposable industrial wipers from regulation as a hazardous waste, we believe that amending §261.3(a)(2)(iv) may well be the most logical. That subsection exempts certain "mixtures of solid wastes and hazardous wastes listed in Subpart D [that] are not hazardous wastes (except by application [of the Subpart C characteristics])...." Thus, if some contaminated disposable wipers did display any of the Subpart C characteristics, then they would remain subject to regulation as hazardous waste.

^{4/} The only theoretically possible concern with reactivity we
(footnote continued)

The characteristic of EP toxicity is also largely irrelevant to solvent contaminated industrial wipers because the wipers are unlikely to contain any meaningful amount of any of the solvents by the time they are disposed of due to evaporation. Moreover, the contaminants to be tested for in the EP toxicity procedure do not include any of the Subpart D solvents.

D. Solvent-Contaminated Disposable Wipers Are Not Capable of Posing a Substantial Present or Potential Hazard to Human Health or the Environment Even if Improperly Stored or Disposed Of

Solvents listed in Subpart D are characterized as toxic or ignitable or both. As we have stated above, disposable industrial wipers contaminated with even ignitable solvents are not ignitable within the meaning of Subpart C. The question, then, is whether disposable industrial wipers contaminated with a toxic waste fit the criteria of a hazardous waste established in EPA's regulations. In pertinent part, those regulations provide that:

(footnote continued from previous page)
could imagine is whether wipers contaminated with carbon disulfide, a F005 hazardous waste, could generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment when exposed to pH conditions between 2 and 12.5. §261.23(a)(5). Even this extreme example does not result in a problem. First, due to the high volatility of carbon disulfide, a contaminated wiper would not contain any significant quantity of this substance by the time the wiper was disposed of. Second, the high toxicity of carbon disulfide and stringent OSHA requirements makes the use of industrial wipers on carbon disulfide extremely unlikely.

- (a) The Administrator shall list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

...

- (3) It contains any of the toxic constituents listed in Appendix VIII unless, after considering any of the following factors, the Administrator concludes that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed....

§261.11.

Probably the most relevant of the factors to be considered in determining whether solvent-contaminated wipers pose a substantial present or potential hazard to human health or the environment is "the concentration of the constituent in the waste." §261.11(a)(3)(ii). After even a very brief period of storage of such wipers under normal conditions -- generally measured in minutes rather than days or weeks -- the wipers contain practically none of the solvent. Similarly, whatever small amount of waste solvents may remain with landfilled disposable wipers would be present as a very small fraction of the overall solid waste stream and would reasonably be expected to be well dispersed throughout the landfill materials.

The potential of the constituent or any toxic degradation product to migrate from the waste into the environment is another factor to be considered. §261.11(a)(3)(iii). Certainly most, if not all, of the Subpart D listed solvent will evaporate into the air prior to ultimate disposal. This has two consequences relevant to this factor: (1) migration in a landfill is not a

concern because there will be virtually no solvent contained in the wiper by the time it reaches a landfill; and (2) there will be vapors released into the atmosphere. Because of the speed with which evaporation occurs, characterizing solvent-contaminated disposable wipers as hazardous will not affect this entry of the solvents into the air. Moreover, the nature of evaporation is identical whether disposable wipers are used or shop towels are used. To treat solvent contaminated disposable wipers as a hazardous waste because used disposable wipers are a solid waste, and therefore the mixture rule applies, while not treating solvent-contaminated shop towels as a hazardous waste because the shop towels are not a solid waste, is illogical and unnecessary since the concern with both -- evaporation of the solvent into the air -- is the same. In any event, if there is a problem, it is one that is already addressed by OSHA standards. See §261.11(a)(3)(x).

In addition, the potential for migration of solvents from disposable industrial wipers into the ground is further reduced by the fact that most such wipers are made from nonbiodegradable absorptive materials which would be unlikely to release any remaining solvent once disposed of in a landfill.

The final relevant factor^{5/} is "the nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the

^{5/} "The quantities of the waste generated at individual generation sites" was referred to earlier, at p. 4. §261.11(a)(3)(viii).

facilities, such as waste separation and periodic testing. No reliable estimates of these extra costs are available, but they could easily add another \$1625 to \$3500 in costs per year for each facility subject to regulation because of the volume of wipers which would be considered hazardous waste.^{7/} Kimberly-Clark's best estimate is that there are 2.7 million facilities that use disposable industrial wipers, of which 1/3 (or 900,000) use such wipers on solvents.^{8/} If all 900,000 facilities that use disposable industrial wipes on solvents had to bear the extra costs of being considered a regulated generator of hazardous wastes, those extra costs could exceed \$3 billion. Even if only 5% of the facilities that use industrial wipers on solvents would have to bear the full extra costs, those costs would still range between \$73 million and \$157 million. Whatever the correct figure -- whether \$73 million or \$3 billion -- the extra costs cannot be justified.

The higher costs of disposing of solvent-contaminated wipers could induce many users to revert to reusable shop towels. This, in turn, would mean increased air emissions of volatile organic compounds from reusable wipers that are subsequently dry-cleaned. Thus, characterizing solvent contaminated disposable wipers as

^{7/} Appendix C provides a detailed breakdown of these estimated, indirect costs prepared by Kimberly-Clark's Corporate Environmental Staff.

^{8/} See Appendix A.

hazardous waste could actually increase the amount of solvent released into the environment as a result of additional dry cleaning.

Further, requiring solvent-contaminated disposable industrial wipers to be disposed of as hazardous waste would put a significant and unnecessary added burden on hazardous waste landfills. The 41.8 million pounds of such wastes each year would be distributed among the approximately 200 hazardous waste landfills^{9/} resulting in an average of over 200,000 pounds of disposable wipers at each hazardous waste landfill. Because of the limited number of landfills suitable for handling hazardous wastes, requiring solvent-contaminated disposable industrial wipers to be disposed of in such landfills would be a serious misallocation of a scarce and valuable resource.

V. Conclusion

For all the above reasons, Kimberly-Clark respectfully urges EPA to exempt solvent-contaminated disposable industrial wipers from the mixture rule, §261.3(a)(2)(iv). Suggested regulatory language is attached as Appendix D.

^{9/} National Survey of Hazardous Waste Generators and Treatment, Storage and Disposal Facilities Regulated Under RCRA in 1981, at 104 (EPA, 1984).

APPENDIX A

SOLVENT USE

Background:

Our experience with wiper users would suggest that there are fewer wipers, either cloth or disposable, used with solvents and chemicals than with oils, grease or water. However, a more analytical answer can be found in past market research studies done for Kimberly-Clark, where types of fluids/substances wiped are tabulated as part of an effort to establish use habits. A review of those studies was made and summarized. This information was then used to determine an estimate of the amount of solvent disposed of per year in disposable wipers.

Findings/Conclusions:

1. Wipers are predominantly used for wiping oil, grease and water.
2. Solvents rank 4-5th among substances wiped with only one-third of the users having any contact with solvents.

3. With respect to the percentage of users using solvents, there was little difference between cloth and disposable wiper users.
4. The amount of solvent disposed of annually in disposable wipers, even under conservative assumptions, represents less than 0.032% of the total waste solvent disposed of annually.

Discussion:

Solvent Use:

From June - August, 1982, a nationwide poll of shoptowel users was conducted for Kimberly-Clark by National Family Opinion, Inc. (Toledo, Ohio). In response to a question asking for the types of fluids/substances that they would use a wiper for, only 32% of the respondents indicated any use of the wiper with solvent. A breakdown of the responses is shown in Table I.

TABLE I

<u>Fluids/Substances Wiped</u>	<u>(%) Responding</u>
Light Oil	59
Grease	51
Heavy Oil	39
Solvents	32
Water	29
Paint	16
Dust/dirt/grime	12

Total number of participants = 109

In a second study, conducted for Kimberly-clark by Winona Research, Inc., during May - June, 1983, among disposable wiper users, use of solvents was again indicated by only 34% of the respondents -- ranking fifth. The exact breakdown is shown below in Table II.

TABLE II

<u>Fluids/Substances Wiped</u>	<u>(%) Responding</u>
Water	65
Grease	47
Light Oil	45
Heavy Oil	40
Solvents	34
Dirt/dust/grime	19
Soap/Hand Cleaner	18

Total number of participants = 136

It is important to note that these respondents were not asked to pick the most common use for disposable wipers in their facility, but rather to indicate all the various uses. Thus, the 34% and 32% rates in these two studies only indicate that one-third of the facilities used some of their wipers on solvents -- not that one-third of the wipers were used on solvents. Further, the respondents were asked about the use of disposable wipers on solvents, all solvents; the question was not limited to the use on the various specific solvents listed in Subpart D. While the portion of wipers used on solvents and particularly on Subpart D solvents is undoubtedly far lower, to be conservative we will assume that one-third of wipers are used on solvents.

Quantitative Analysis:

Amount of waste solvent disposed of in disposable wipers per year

$$\begin{aligned} & (\text{Weight of wiper}) \times (\% \text{ saturation by weight}) \times \\ & (\text{number of wipers per year}) \end{aligned}$$

Where

- Weight of wiper is approximately 7.3g
(67 g/m²; average wiper is 12" x 14")
- % saturation by weight is 17%^{1/}
- one-third of all disposable wipers are used with solvents

^{1/} As shown in Table II of Appendix B to Kimberly-Clark's request for an exemption of oil-contaminated industrial wipers from forthcoming waste oil rules, dated June 15, 1983 ["Appendix B (1983)"] a cross-sample of oil-contaminated industrial wipers contained 16.7% oil by weight. That same table shows that other industrial wipers contained 14.6% water or volatile organic solvents, though the great bulk was thought to be water. Appendix B (1983) at p. 4. Based on this information and on our experience, we believe that it is extremely conservative to assume that solvent contaminated industrial wipers contain an average of 17% solvent by weight at the time they become contaminated.

As shown in Appendix B to this submission, virtually all solvent will have evaporated from such a wipe long before it can be disposed of. In a very real sense, then, it would be more accurate to say that the % saturation by weight is 0%.

- 7.8×10^9 wipers are used each year^{2/}

Therefore

$$\begin{aligned}\text{The amount of waste solvent disposed of in disposable wipers} \\ \text{per year} &= (7.3 \text{ g}) \times (.17) \times (.33) \times (7.8 \times 10^9) \\ &= 3.23 \times 10^6 \text{ Kg/year} \\ &= 7.1 \times 10^6 \text{ lbs./year}\end{aligned}$$

At the very maximum, therefore, some 7 million pounds of solvent are disposed of each year in disposable wipers. This is an insignificant percentage of the total volume of solvent listed in Subpart D disposed of each year, amounting to under 0.032%. This percentage is derived as follows:

$$\text{Percentage} = \frac{\text{Solvent in wiper}}{\text{total disposed Subpart D solvent}} \times 100\%$$

^{2/} Published estimates of the size of the industrial wiper market vary from a high of \$600 million to a low of \$520 million in 1981, and the amount accounted for by disposable industrial wipers is estimated to be between \$135 million and \$205 million. Kimberly-Clark's own estimates put the disposable wiper market at \$184 million in 1981, which is toward the high end of the distribution. Based on this latter figure and prevailing prices in 1981, we estimate that 7.8 billion disposable wipers were used in 1981, and that this number has remained fairly constant over the last few years.

Where

$$\text{Solvent in wipers} = 7.1 \times 10^6 \text{ lbs/year}$$

$$\text{Total disposed Subpart D solvent} = 2.24 \times 10^{10} \text{ lbs/year}^{3/}$$

Therefore

$$\begin{aligned} \text{Percentage of total disposed solvent disposed of in} \\ \text{disposable wipers} = \frac{7.1 \times 10^6 \text{ lbs/year}}{2.25 \times 10^{10} \text{ lbs/year}} \times 100 = 0.032\% \end{aligned}$$

It must be emphasized, however, that even this insignificant proportion vastly overstates the true contribution of disposable industrial wipers to the load of solvents disposed of. As demonstrated in Appendix B, virtually no solvents will be added to disposal sites through disposable industrial wipes.

^{3/} Some 3.2 billion gallons of spent halogenated and nonhalogenated solvents listed in Subpart D were disposed of in 1981. National Survey of Hazardous Waste Generators and Treatment, Storage and Disposal Facilities Regulated Under RCRA in 1981, at p. 180 (EPA, 1984). Based on the specific gravities of several solvents, we estimate that each gallon of spent solvent weighed an average of at least 7 pounds. Thus, the weight of solvents disposed of in 1981 equalled (3.2 billion) x (7 pounds) = 22.4 billion pounds.

APPENDIX B

Evaporation Studies

Background:

Most disposable wipers are "stored" for a considerable period of time before actual disposal takes place -- whether it is landfill, incineration or some other acceptable method. As many of the solvents will evaporate, this study was done to determine how quickly some common solvents would evaporate from a used wiper. Although evaporation rates are published for many solvents, these rates are determined for just the solvent and do not consider any effects an absorbent material, such as wipers, might have on the rate.

Findings/Conclusions:

1. After a period of 5 hours, all the solvents had evaporated (see Table I). As most disposable wipers are stored for longer than 5 hours before removal, the amount of solvent contributed to a landfill by a wiper would appear to be negligible.
2. The type of disposable wiper appeared to have little effect on the rate.

Discussion:

Six common solvents were chosen for this study based on our experience in the working environment. Because of the requirement in §222 of the Hazardous and Solid Waste Amendments of 1984 for EPA to consider listing "solvents" in Subpart D, we did not confine this report to currently listed solvents. Additionally, an attempt was made to have representative solvent types. The solvents chosen were:

Hexane
1,1,1-Trichloroethane
Methyl Ethyl Ketone (MEK)
2-Propanol (Isopropyl Alcohol)
Perchloroethylene
Mineral Spirits

Similarly, five disposable wipers were selected to represent the wide range of wiping materials available on the market. They were:

<u>Wiper</u>	<u>Construction</u>	<u>Company</u>
SHURWIPE 2	Airlaid	Fort Howard
SANTARA	Spunlace	DuPont
KIMTEX	Meltblown	Kimberly-Clark
WYPALL	Tissue, print creped	Scott
TERI	Scrim reinforced tissue	Kimberly-Clark

Procedure:

A digital balance was placed on the bottom of a trash can (typical in size to an industrial waste can -- 20 gal.), to simulate storage of a used wiper. A wiper sample (2" sample)^{1/} was saturated with solvent and placed on the balance. Weighings were recorded at frequent time intervals until evaporation was complete. The results were tabulated and can be found in the following table and graphs.

TABLE I
Time for Total Evaporation
(Minutes)

Wiper	Hexane	1,1,1-Tri	MEK	2-Propanol	Perchlor	Mineral
SHURWIPE 2	10	18	20	40	48	230
SANTARA	6	8	6	24	18	160
KIMTEX	8	18	12	28	48	280
WYPALL	10	10	14	29	38	280
TERI	6	6	8	18	18	150

Figures 1-6 show the actual evaporation rate curves for the various solvents. The wiper sample weight has been subtracted out so that the weight shown represents only the weight of solvent remaining in the sample at any given time. In this way, the x-intercept represents the time for total evaporation.

^{1/} A 2" circular sample was chosen for convenience in placement on the balance pan. The amount of solvent contained in this saturated sample, however, was approximately the same as would be contained in a full-sized wiper saturated the normal 17% by weight. Additionally, the evaporation rate was essentially constant making the total amount of solvent less of a factor.

Figures 7-12 are simply another representation of the same data in bar graph form. A 1/2-Life was calculated and shown on the same graph. For this paper, the 1/2-Life was defined as the time required for half the solvent to evaporate. This was done to compensate for the almost asymptotic shape of the curves as the amount of certain of the solvent approaches zero.



Kimberly-Clark Corporation

To: Ken Strassner
cc: F. Stute/File

Location: WCO

Date: May 24, 1983

From: Karen Chopp

Subject: WASTE OIL WIPER COMMENTS

Following is a rough estimate of the additional analytical and labor costs associated with managing a hazardous waste for a relatively small quantity generator.

	Annual Cost (\$)
Waste Characterization/Testing	\$500-1500
Labor . Manifest Preparation	
5-10 hrs. x \$25/hr.	125-250
. Annual report preparation	
2-4 hrs. x \$25/hr.	50-100
. Personnel training	
4-8 hrs. x \$25/hr.	100-200
. Financial reporting	
5-10 hrs. x \$25/hr.	125-250
. Inspections	
20-30 hrs. x \$25/hr.	500-750
. Update contingency plans, etc.	
4-8 hrs. x \$25/hr.	100-200
. Coordinate arrangements with disposal/recycling facilities	
5-10 hrs. x \$25/hr.	125-250
	<u>\$1625-3500</u>

The \$25/hr. rate is designed to include direct salary and indirect benefits costs for job classifications likely to be involved in hazardous waste handling.

If you have any questions, please call.

/s/

APPENDIX D

Amend 40 C.F.R. §261.3(a)(2)(iv) as follows:

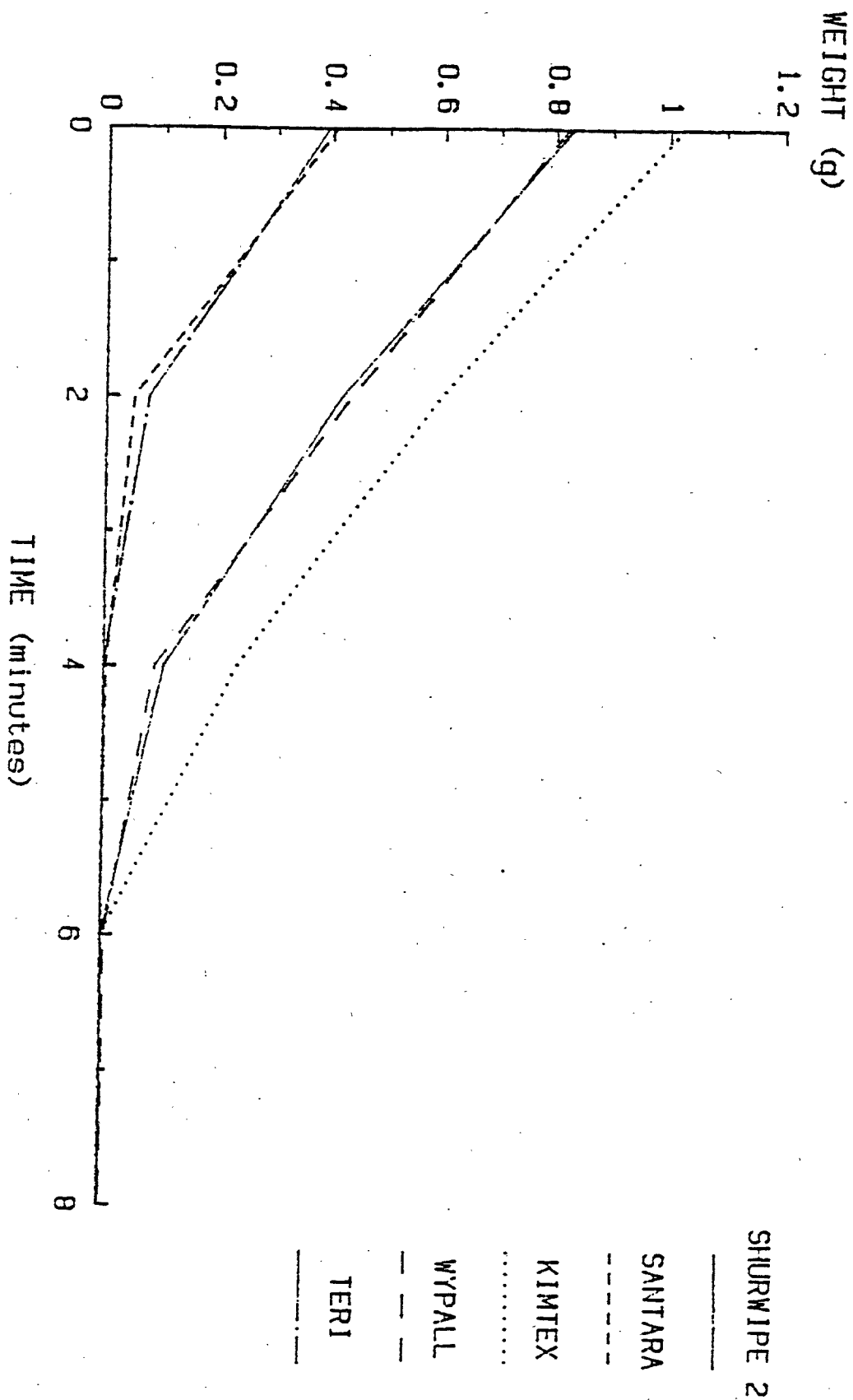
(iv) It is a mixture of solid waste and one or more hazardous wastes listed in Subpart D and has not been excluded from this paragraph under §260.20 and 260.22 of this chapter; however, the following mixtures of solid wastes and hazardous wastes listed in Subpart D are not hazardous wastes (except by application of paragraph (a)(2)(i) or (ii) of this section) if the generator can demonstrate that the mixture consists of

(A) disposable industrial wipers used to wipe faces, hands, tools, equipment, or surfaces of one or more of the solvents listed in §261.31 as F001, F002, F003, F004 or F005; or

(B) wastewater the discharge of which is subject to regulation under either Section 402 or Section 307(b) of the Clean Water Act (including wastewater at facilities which have eliminated the discharge of wastewater) and:

- (1) [text of current subsection (A)]
- (2) [text of current subsection (B)]
- (3) [text of current subsection (C)]
- (4) [text of current subsection (D)]
- (5) [text of current subsection (E)]

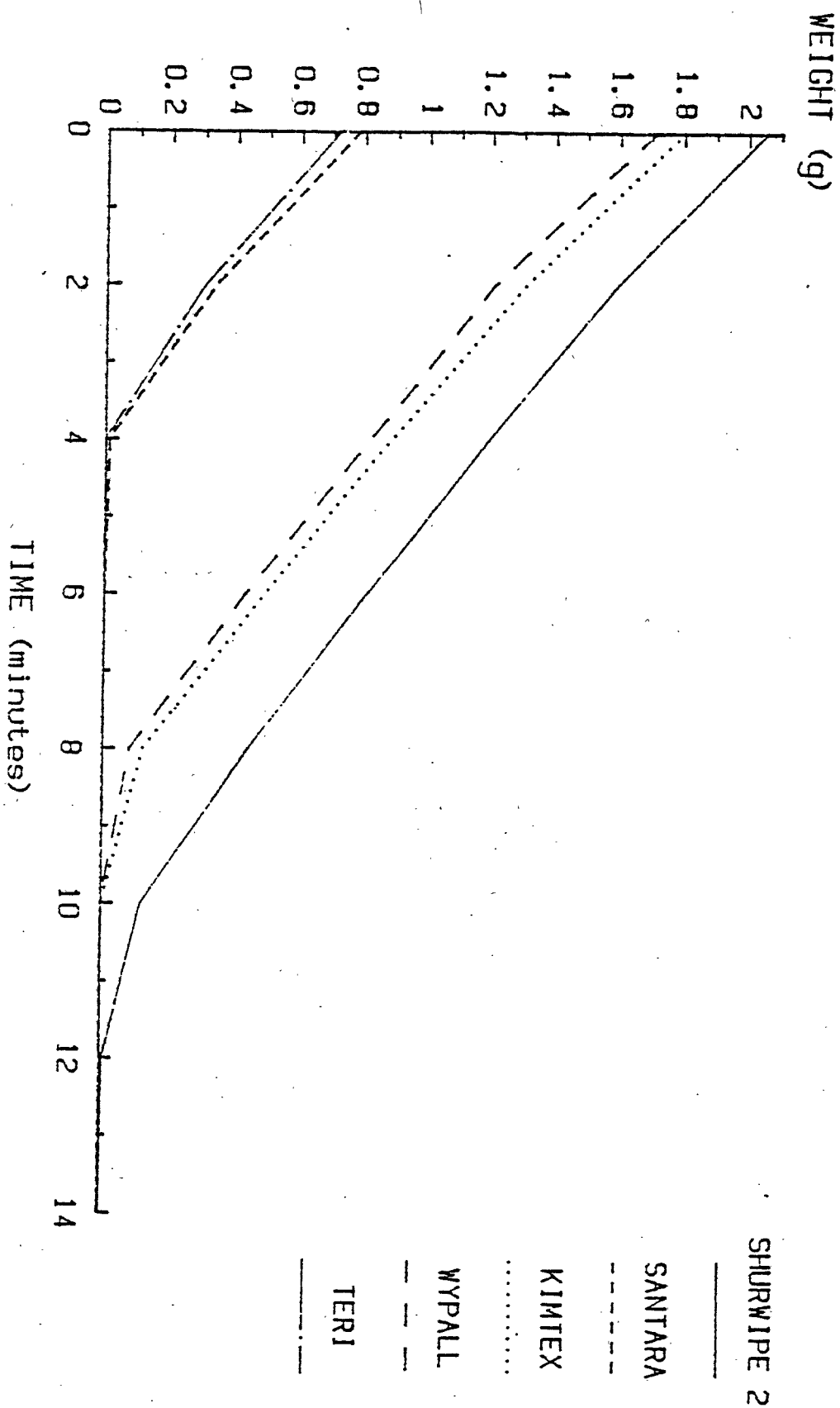
SOLVENT EVAPORATION FROM WIPERS HEXANE



SME
9/27/84
HEXANE

Figure 2

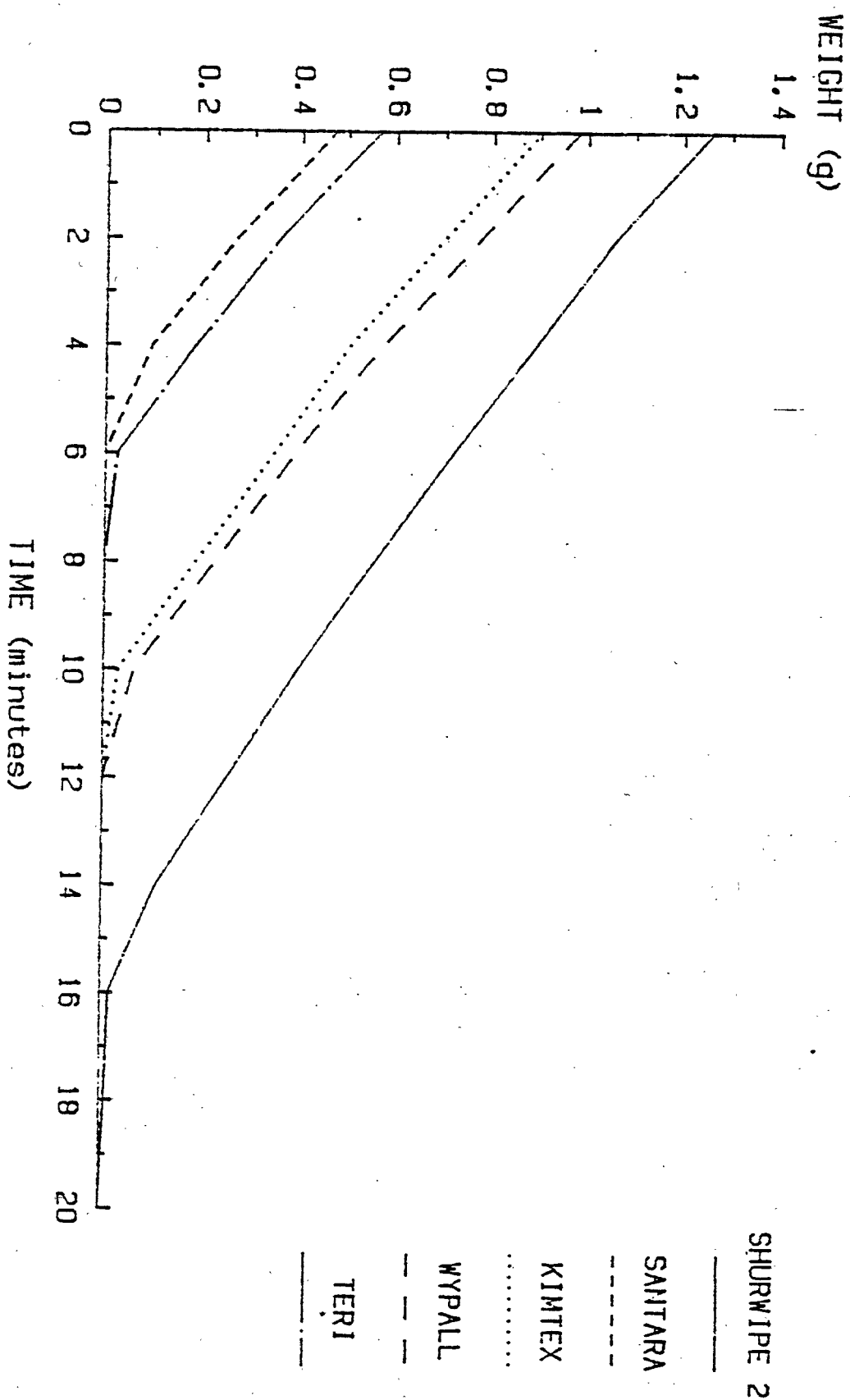
SOLVENT EVAPORATION FROM WIPERS 1,1,1-TRICHLOROETHANE



SME
9/27/84
111TRI

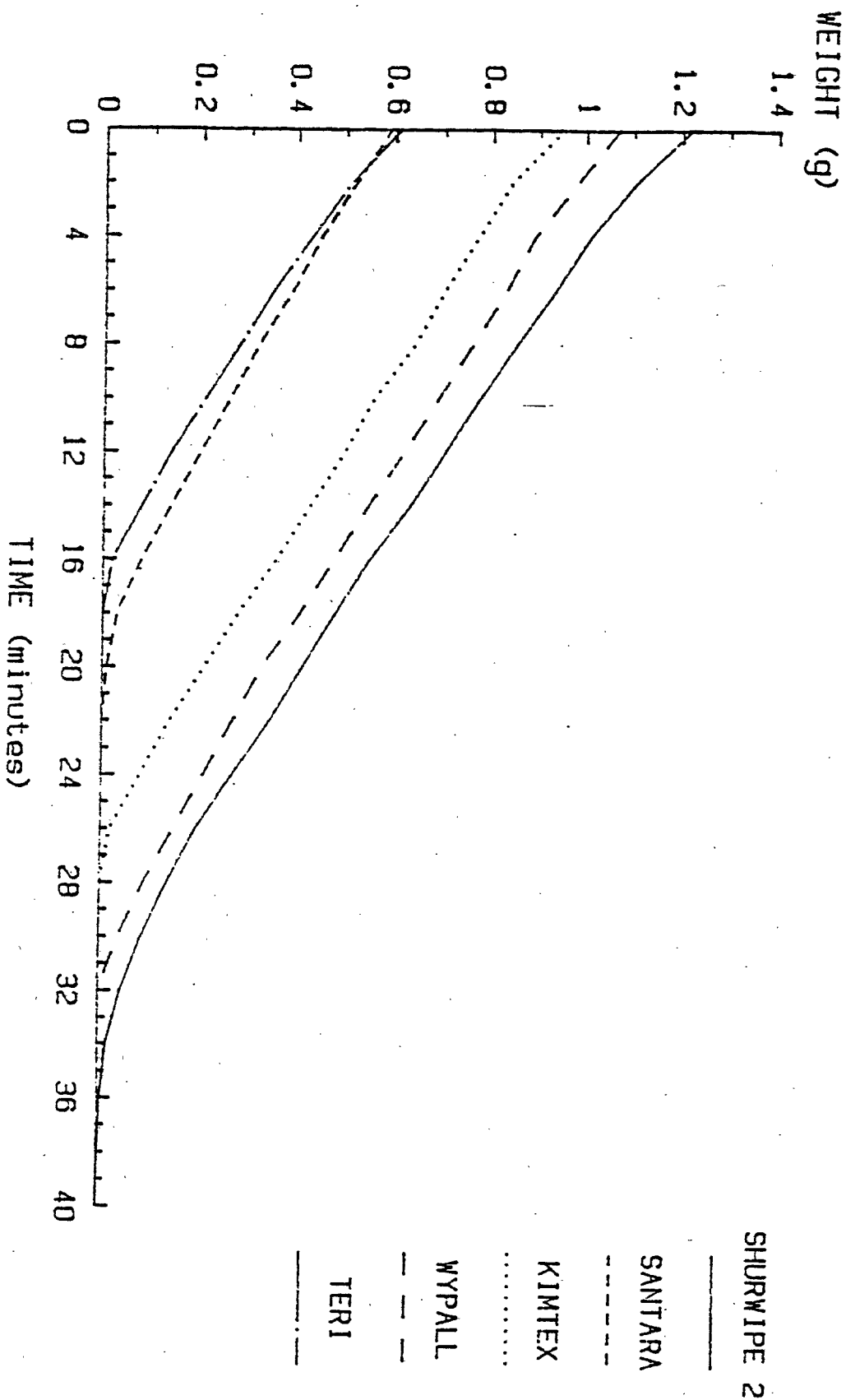
Figure 3

SOLVENT EVAPORATION FROM WIPERS METHYL ETHYL KETONE (MEK)



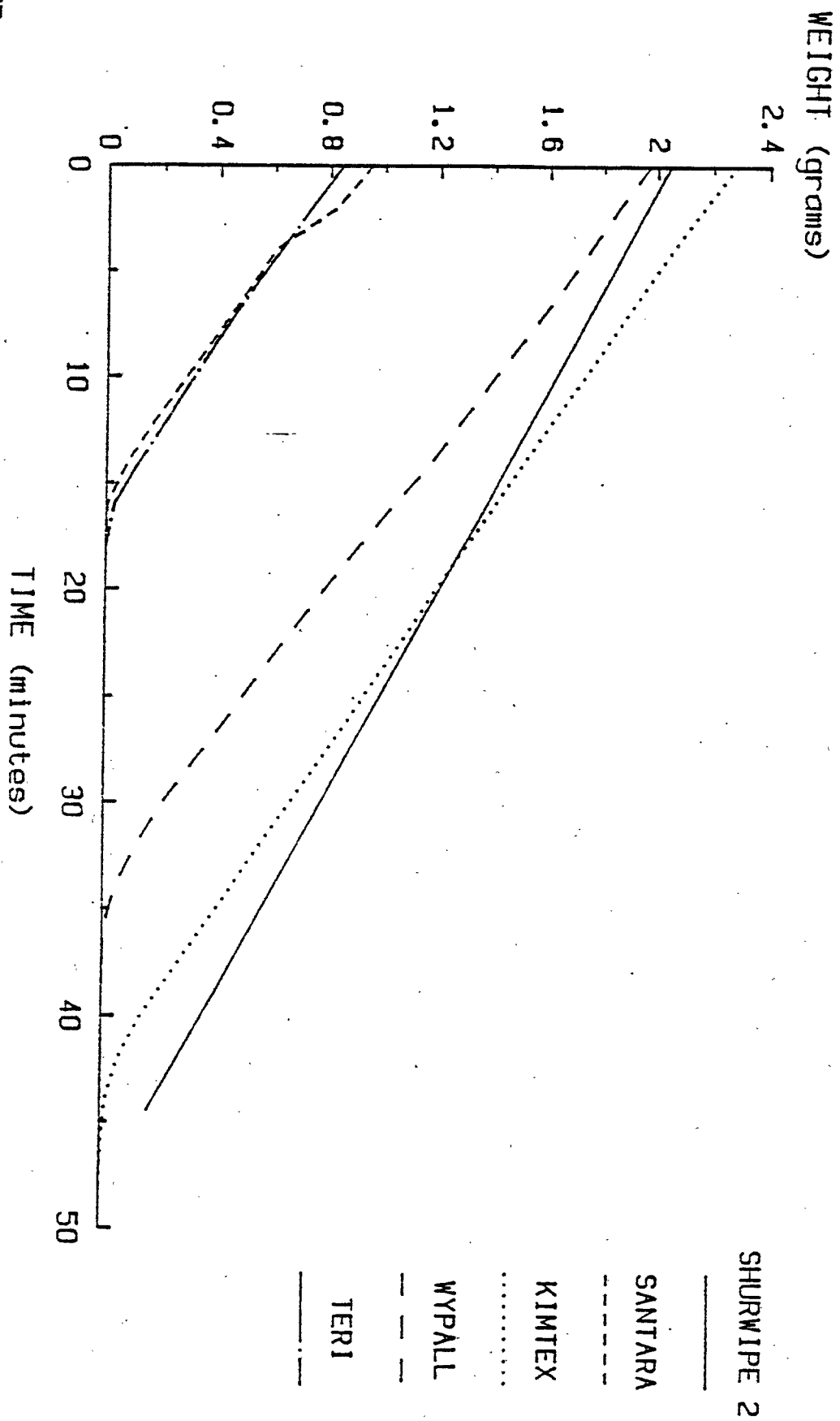
SME
9/27/84
MEK

SOLVENT EVAPORATION FROM WIPERS 2 - PROPANOL



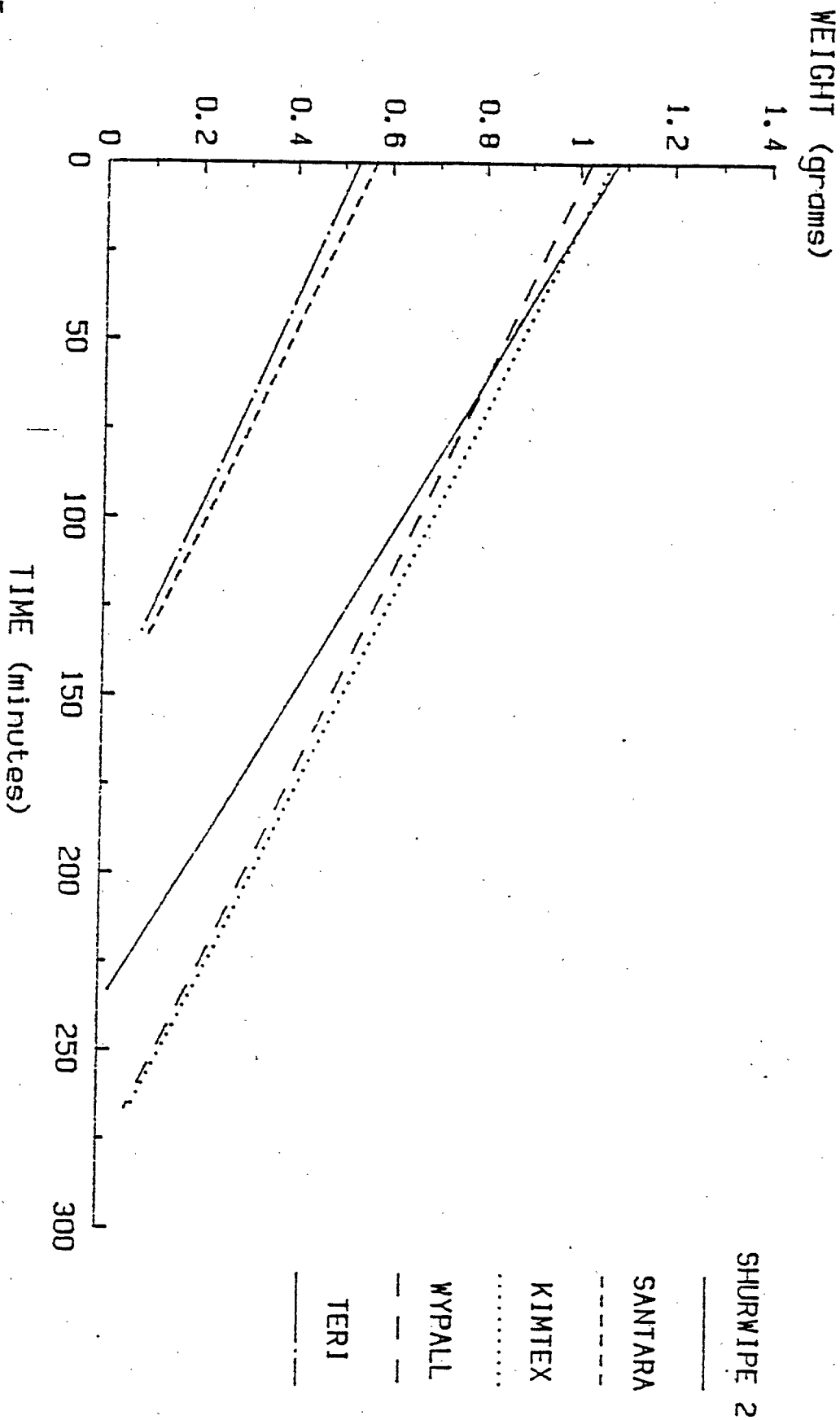
SME
9/27/84
PROPANL

SOLVENT EVAPORATION FROM WIPERS PERCHLOROETHYLENE



SME
9/27/84
PERCHL

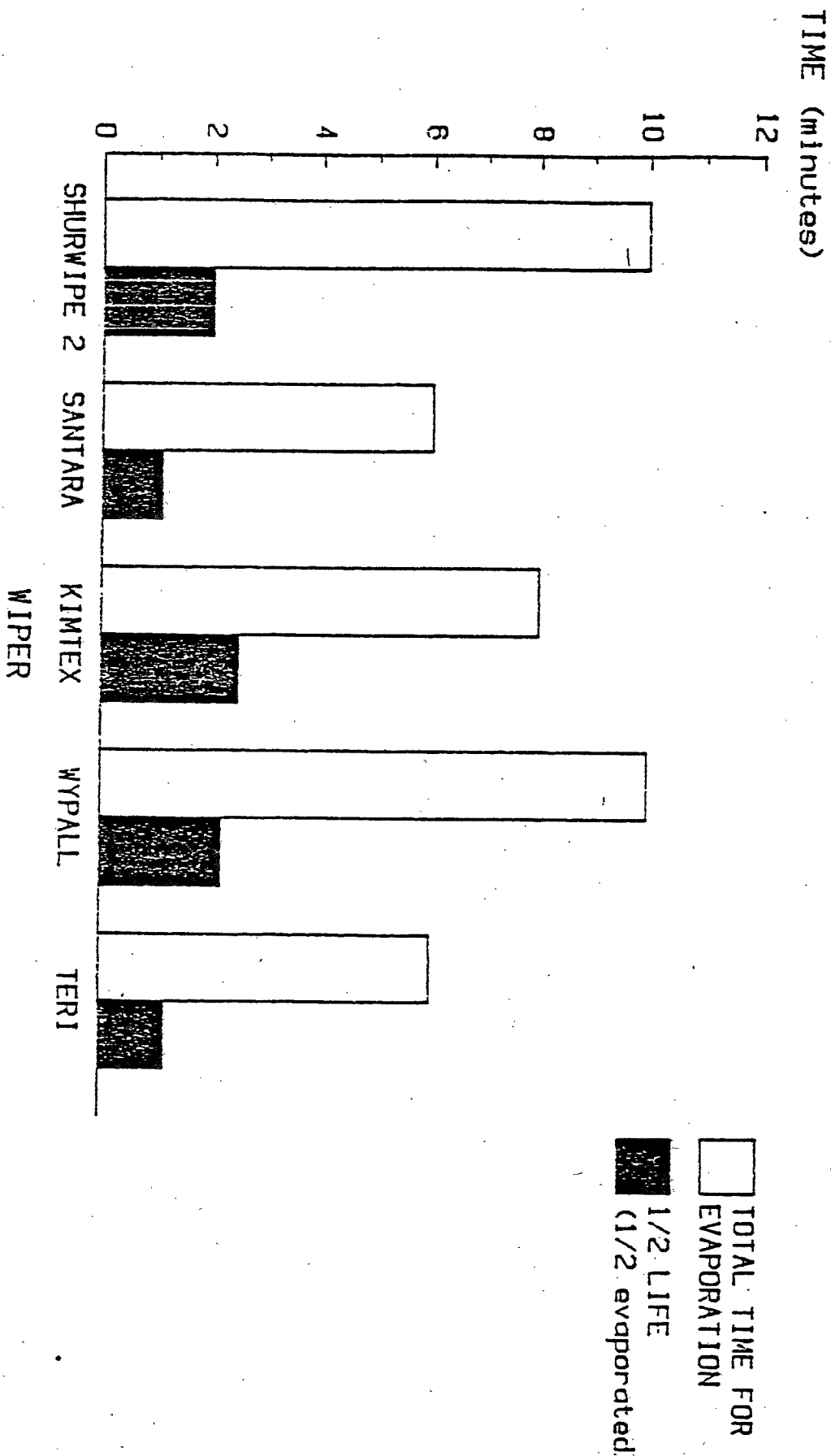
SOLVENT EVAPORATION FROM WIPERS MINERAL SPIRITS



SME
9/27/84
MINERAL

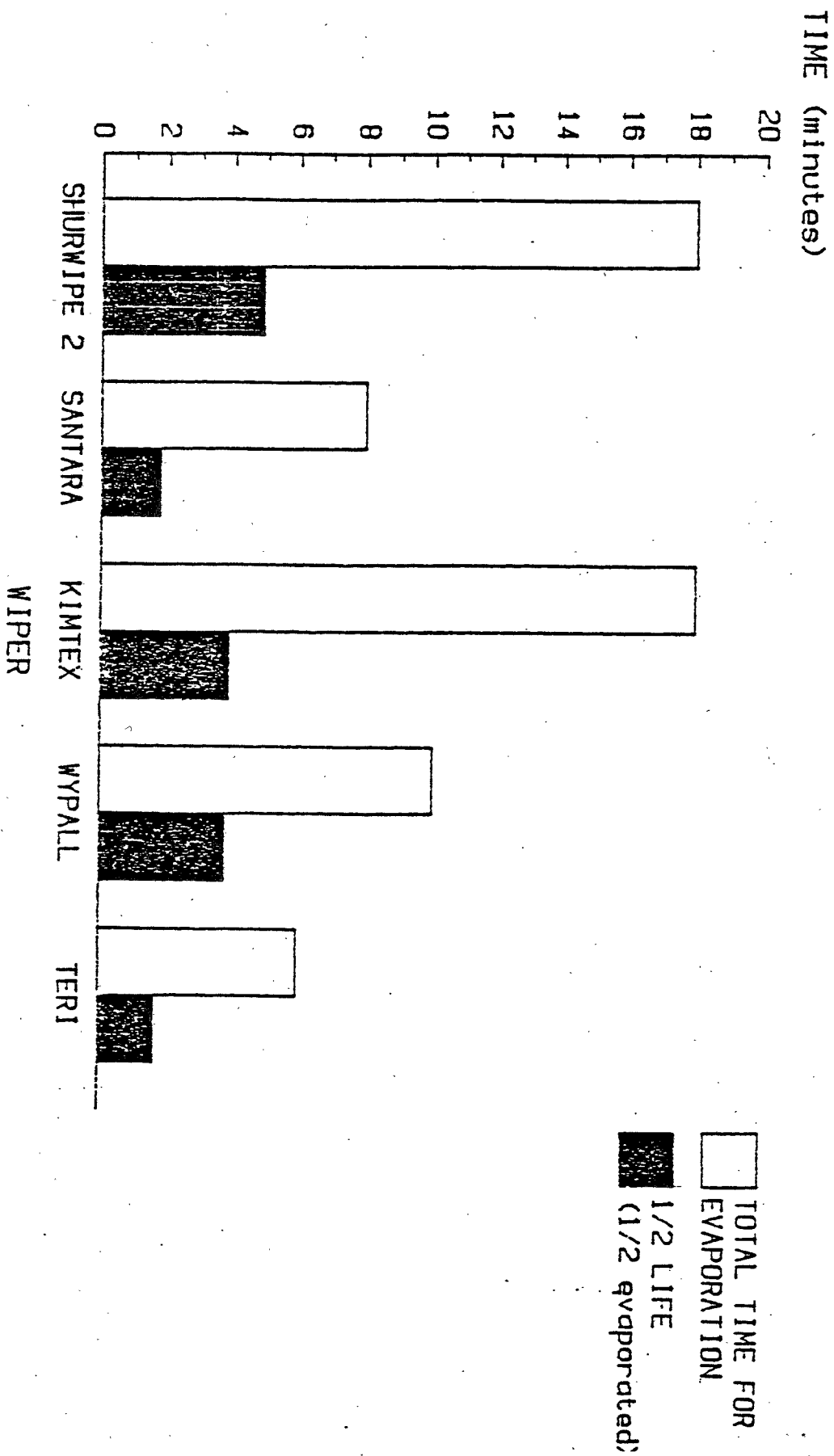
Figure 7

SOLVENT EVAPORATION FROM WIPERS 1/2 - LIFE HEXANE



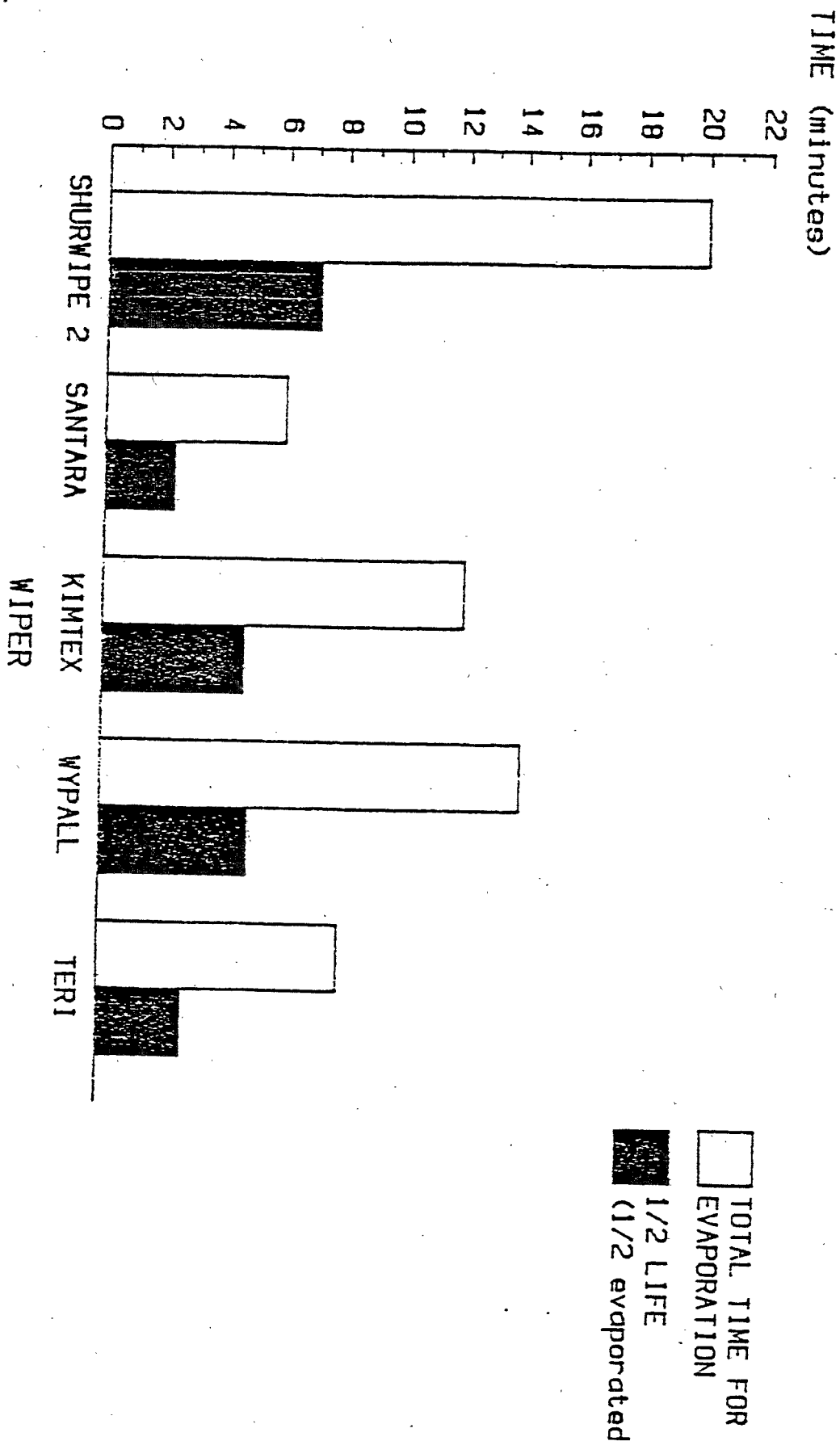
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HEXANES

SOLVENT EVAPORATION FROM WIPERS 1/2 - LIFE 1,1,1 - TRICHLOROETHANE



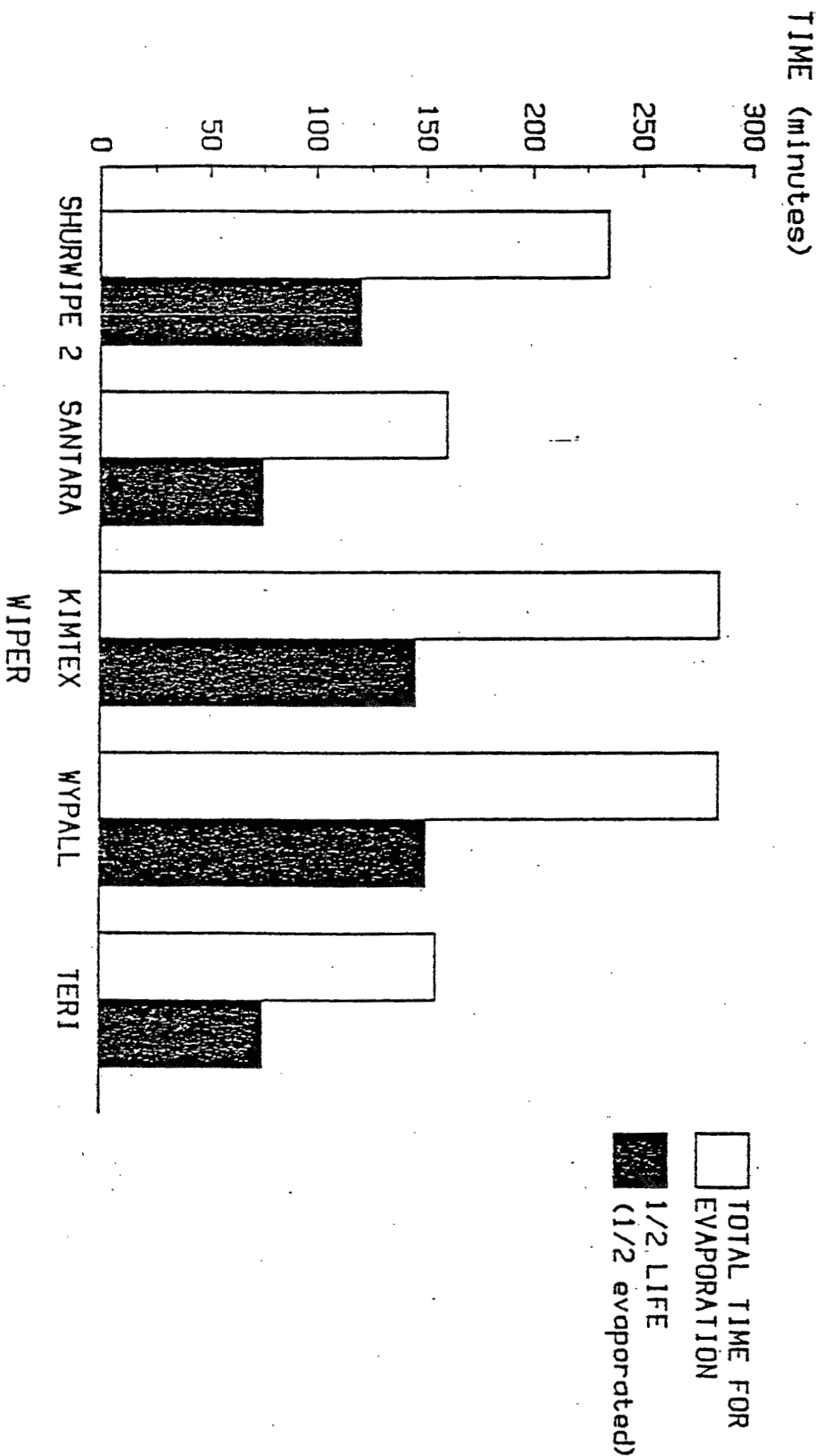
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SOLVENT EVAPORATION FROM WIPERS 1/2 - LIFE METHYL ETHYL KETONE (MEK)



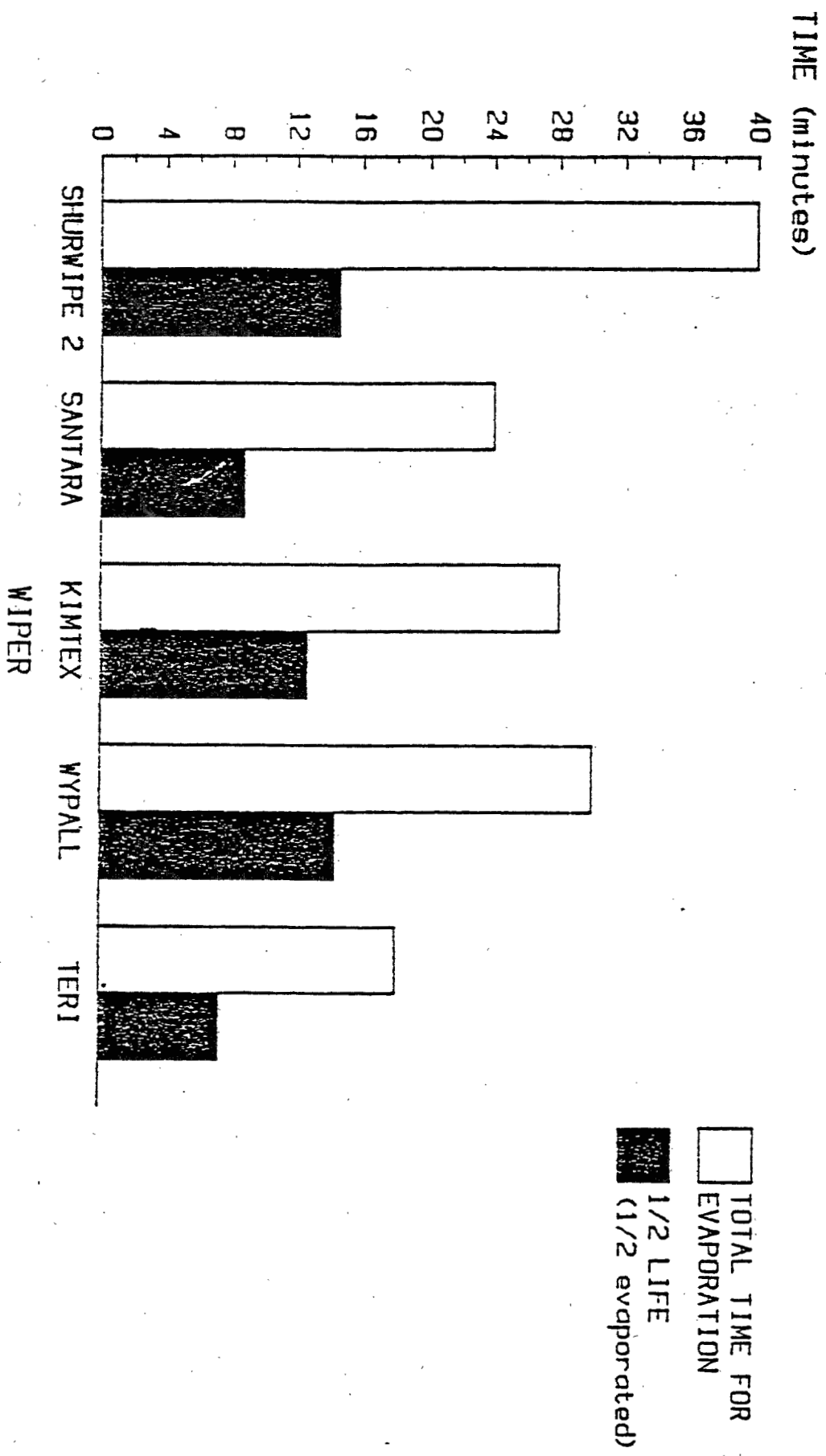
SME
9/27/84
MEKS

SOLVENT EVAPORATION FROM WIPERS 1/2 - LIFE MINERAL SPIRITS



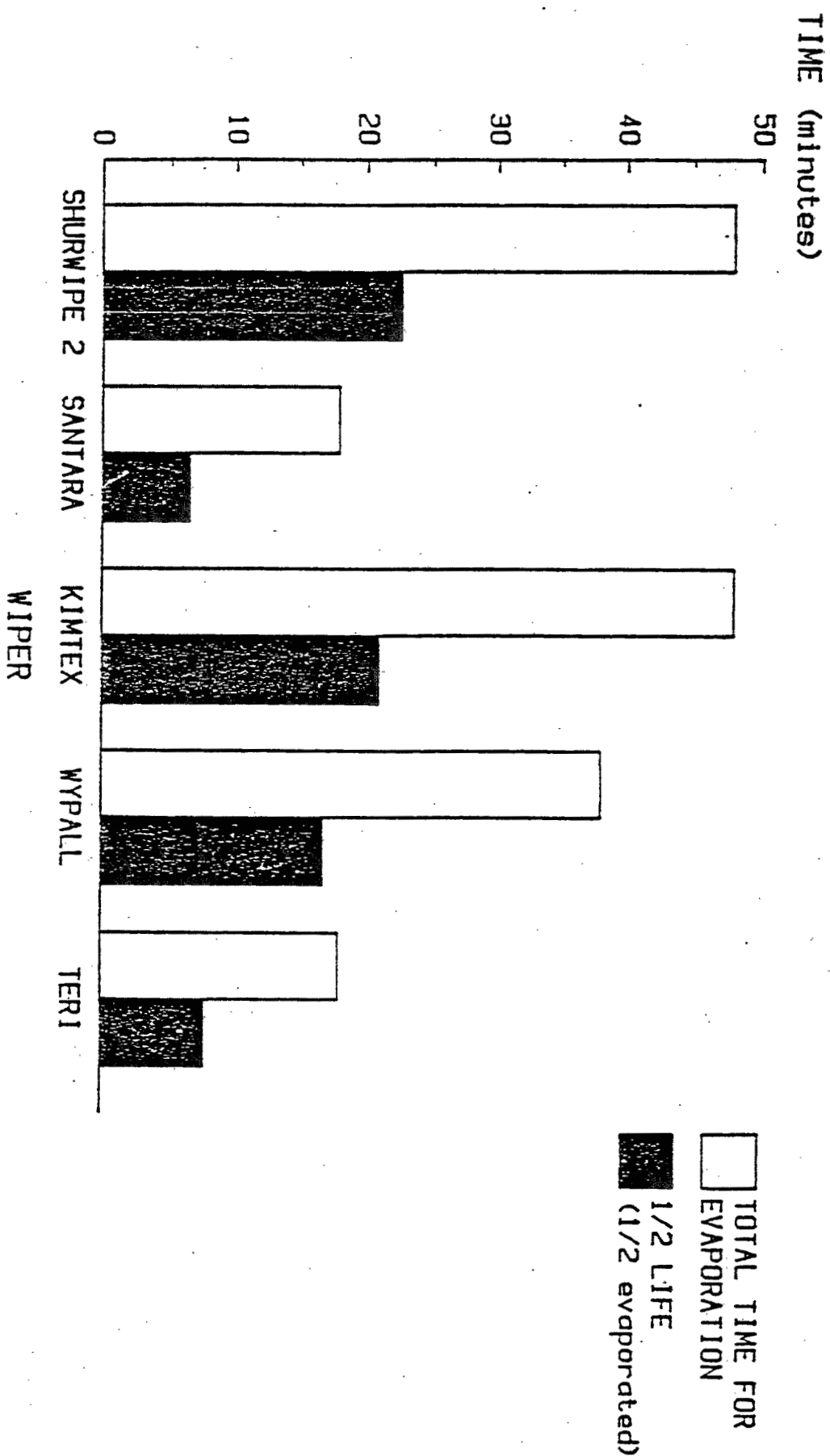
SME
9/27/84
MINERALS

SOLVENT EVAPORATION FROM WIPERS 1/2 - LIFE 2 - PROPANOL (IPA)



9/27/84
IPAS

SOLVENT EVAPORATION FROM WIPERS 1/2 - LIFE PERCHLOROETHYLENE




SME
9/27/84
PERCHL5

V. Conclusion

For all the above reasons, Kimberly-Clark respectfully urges EPA to exempt solvent-contaminated disposable industrial wipers from the mixture rule, §261.3(a)(2)(iv). Suggested regulatory language is attached as Appendix D.

Respectfully submitted,


Leonard A. Miller
Attorney for Kimberly-Clark

Swidler, Berlin, and Strelow,
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1000 Thomas Jefferson St. N.W.
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Date: March 26, 1985

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